

WHAT IS CLAIMED IS:

1. A cyclone-type dust collecting apparatus for a vacuum cleaner, comprising:

a cyclone body having an air inlet port and an air outlet port, for forming a vortex current
5 of air which contains dust and is introduced through the air inlet port;

a dust collecting container removably coupled to the cyclone body so as to collect the
dust separated by a centrifugal force of the vortex current in the cyclone body;

a double impeller grill assembly disposed at an upstream portion of the air outlet port in
the cyclone body to prevent the air from flowing back through the air outlet port, and having a
10 dual structure comprising an outer grill and an inner grill; and

a fine dust collecting means disposed at a downstream portion of the double impeller grill
assembly in the cyclone body to collect fine dust which is not removed by the double impeller grill
assembly.

15 2. The apparatus of claim 1, wherein the cyclone body comprises a vortex current
chamber member having the air inlet port at an outer surface thereof and a communicating hole at
an upper surface thereof; and

a pressure drop chamber member coupled to the vortex current chamber member in fluid
communication through the communicating hole and having the air outlet port at an outer surface
20 thereof; and

wherein the double impeller grill assembly is disposed at the vortex current chamber
member, and fine dust collecting means is disposed at the pressure drop chamber member.

3. The apparatus of claim 2, wherein the pressure drop chamber member comprises
25 a path forming member partitioning an inner space of the pressure drop chamber member into a

first space in fluid communication with the communicating hole and a second space in fluid communication with the air outlet port, so that the air containing the fine dust passing through the double impeller grill assembly is flown from the upstream portion toward the downstream portion of the fine dust collecting means and exhausted through the air outlet port.

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4. The apparatus of claim 3, wherein the fine dust collecting means comprises a filter mounting portion formed at an upper side of the path forming member and having a front opening and a plurality of upper and lower through holes for fluidly communicating the air outlet guiding path and the air outlet port; and

10 a filter assembly detachably coupled to the filter mounting portion in a drawer way.

5. The apparatus of claim 4, wherein the filter assembly comprises a filter case having a shape corresponding to a size and a structure of the filter mounting portion; and a fine filter disposed at the filter case.

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6. The apparatus of claim 5, wherein the fine filter is formed of sponge.

7. The apparatus of claim 4, further comprising a packing member disposed at a portion of the filter case, which is contacted with an edge of the front opening.

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8. The apparatus of claim 4, further comprising a handle provided at a front face of the filter case.

9. The apparatus of claim 2, wherein the outer grill and the inner grill are
25 respectively provided with a cylindrical grill body and a plurality paths formed at an outer surface

of the cylindrical grill body to be fluidly communicated with the communicating hole, and a dust preventing member is disposed at a lower side of the inner grill.

10. The apparatus of claim 9, wherein the paths are defined by a plurality of path
5 members which are disposed at an outer surface of the grill body at regular intervals to be inclined at a desired angle.

11. The apparatus of claim 9, wherein the dust preventing member has a conical
portion that is spread downward from a lower end of the grill body at a desired angle and a
10 cylindrical portion that is extended downward from the conical portion at a desired distance.

12. The apparatus of claim 11, wherein the dust preventing member is integrally
formed with the grill body.

13. The apparatus of claim 1, wherein the dust collecting container has a dual
15 structure comprising an outer cylinder which has the same diameter as that of the cyclone body and an inner cylinder which has the same diameter as that of the outer grill, and thus is partitioned into a first dust collecting portion and a second dust collecting portion, and at least one dust outlet path for exhausting the dust of the first dust collecting portion to a second dust collecting portion
20 is formed at a lower side of the inner cylinder.

14. The apparatus of claim 13, wherein a pair of the dust outlet paths are provided to
be opposite to each other.

25 15. A vacuum cleaner, comprising:

a suction brush having a nozzle opened toward an surface to be cleaned and a motor driving chamber in which a motor for generating a suction force in the nozzle is mounted;

a main body of the vacuum cleaner, which is rotatably connected to the suction brush and has an air outlet path and an air inlet path connected to the motor driving chamber; and

5 a cyclone-type dust collecting apparatus removably disposed in a dust chamber of the main body, for separately collecting dust contained in air introduced through the nozzle of the suction brush,

wherein the cyclone-type dust collecting apparatus comprises a cyclone body having an air inlet port connected to the air inlet path and an air outlet port connected to the air outlet path
10 and forming a vortex current of the air containing the dust introduced through the air inlet port; a dust collecting container removably coupled to the cyclone body so as to collect the dust separated by centrifugal force of the vortex current in the cyclone body; a double impeller grill assembly disposed at an upstream portion of the air outlet port in the cyclone body to prevent the air from flowing back through the air outlet port, and having a dual structure comprising an outer grill and
15 an inner grill; and a fine dust collecting means disposed at a downstream portion of the double impeller grill assembly in the cyclone body to collect fine dust which is not removed by the double impeller grill assembly.

16. The cleaner of claim 15, wherein the cyclone body comprises a vortex current
20 chamber member that the air inlet port is formed at an outer surface thereof and a communicating hole is formed at an upper surface thereof; and

a pressure drop chamber member coupled to the vortex current chamber member in fluid communication through the communicating hole and having the air outlet port at an outer surface thereof, and

25 wherein the double impeller grill assembly is disposed at the vortex current chamber

member, and the fine dust collecting means is disposed at the pressure drop chamber member.

17. The cleaner of claim 16, wherein the pressure drop chamber member comprises a path forming member partitioning an inner space of the pressure drop chamber member into a first space in fluid communication with the communicating hole and a second space in fluid communication with the air outlet port, so that the air containing the fine dust passing through the double impeller grill assembly is flown from the upstream portion toward the downstream portion of the fine dust collecting means and exhausted through the air outlet port.

18. The cleaner of claim 17, wherein the fine dust collecting means comprises a filter mounting portion formed at an upper side of the path forming member and having a front opening and a plurality of upper and lower through holes for fluidly communicating the air outlet guiding path and the air outlet port; and

a filter assembly detachably coupled to the filter mounting portion in a drawer way.

19. The cleaner of claim 18, wherein the filter assembly comprises a filter case having a shape corresponding to a size and a structure of the filter mounting portion; and a fine filter disposed at the filter case.

20. The cleaner of claim 19, wherein the fine filter is formed of sponge.

21. The cleaner of claim 19, further comprising a packing member disposed at a portion of the filter case, which is contacted with an edge of the front opening.

22. The cleaner of claim 19, further comprising a handle provided at a front face of

the filter case.

23. The cleaner of claim 17, wherein the outer grill and the inner grill are respectively provided with a cylindrical grill body and a plurality paths formed at an outer surface of the cylindrical grill body to be in fluid communication with the communicating hole, and a dust preventing member is disposed at a lower side of the inner grill.

24. The cleaner of claim 23, wherein the paths are defined by a plurality of path members which are disposed at an outer surface of the grill body at regular intervals to be inclined at a desired angle.

25. The cleaner of claim 23, wherein the dust preventing member has a conical portion that is spread downward from a lower end of the grill body at a desired angle and a cylindrical portion that is extended downward from the conical portion at a desired distance.

26. The cleaner of claim 25, wherein the dust preventing member is integrally formed with the grill body.

27. The cleaner of claim 15, wherein the dust collecting container has a dual structure comprising an outer cylinder which has the same diameter as that of the cyclone body and an inner cylinder which has the same diameter as that of the outer grill, and thus is partitioned into a first dust collecting portion and a second dust collecting portion, and at least one dust outlet path for exhausting the dust of the first dust collecting portion to a second dust collecting portion is formed at a lower side of the inner cylinder.

28. The cleaner of claim 27, wherein a pair of the dust outlet paths are provided to be opposite to each other.